

March 23, 2001

# SPACE CENTER Roundup

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## From the Desk of Acting Director Roy Estess

This has been a tremendous couple of weeks for JSC, and NASA as a whole. The end of February brought news of not only the President's intentions for NASA budgeting, but also news about a change in the Center's leadership.

JSC is a Flagship of NASA's centers and has a vital role in human exploration of space. George Abbey's absence leaves remarkable shoes to fill, and while the search is underway, Mr. Goldin has asked me to serve as Acting Director. I am very humbled to have been asked to fill this role, and look forward to working with the JSC team while the search goes on.

I want you to know that I have a tremendous amount of respect for the men and women of JSC. This Center has a long history of outstanding contributions to human space flight, and is without doubt one of the finest organizations in the government. JSC has an endless list of accomplishments over the years, but many, many more are yet to come. Our launch March 8 of Discovery was nearly flawless, and was a perfect testimony to the technical and managerial excellence of the entire JSC team. As we continue to fly the Shuttle and build the ISS, we will have many more successes to celebrate.

As far as the budget is concerned, the budget blueprint proposed by the new administration is going to mean some changes for NASA and the human space flight program. The budget is a work in progress - and although it has given us some policy direction, we must look forward to the President and Congress to work out the final budget numbers to see where exactly that will lead us. It is clear that we have some challenges ahead of us, and also clear that we will have to re-direct some of our resources. At times like this, we need to take a long-term view. Do we have some challenging times ahead? Yes. But are there prospects for a strong and healthy space program present also? Yes. I am confident from what I've seen in the past couple of weeks that JSC will continue to be the strong, vibrant focal point for human space flight that it has always been.

As Acting Director, I intend to maintain an open stream of communication, and I will continue to keep you informed of developments through all available means. Let me end with this final thought. The best thing we can do at this particular time is focus on the challenges of our central mission. We have three people on-orbit right now, and they are counting on us to keep our eye on the ball. Let's all do our very best.

## Stellar employees receive Rotary awards

**T**he Rotary National Award for Space Achievement Foundation recently honored several government and industry employees for their outstanding achievements in space. Among those highlighted for their dedication and commitment at the March 2 black-tie event was International Space Station Program Manager Tommy Holloway, who was presented with the National Space Trophy for his remarkable role in the international program.

A veteran engineer, an expert in flight activities and planning, and a senior NASA manager, Holloway has left his mark on the Mercury, Gemini, Apollo, Skylab, space shuttle and space station programs.

As manager of the International



NASA JSC 2001e06444  
**Tommy Holloway was presented with the National Space Trophy. He is shown here with wife, Shirley, Congresswoman Sheila Jackson-Lee and Mayor Lee Brown.**

Space Station Program, Holloway directs all aspects of the International Space

infrastructure components and welcomed the first full-time resident crew to orbit.

Station design, development, test and operations. His responsibilities include the integration and delivery of elements that will use five different launch vehicles in four countries. Under his leadership, the program has successfully launched and assembled several key

Holloway began his four-decade career after earning his bachelor's degree in mechanical engineering from the University of Arkansas. He joined NASA as a flight planner in Project Mercury in 1963. Later, he created flight plans, flight data file processes and flight crew procedures critical to the success of the Gemini and Apollo programs.

In 1978, Holloway was named a space shuttle flight director, where he helped to resolve critical orbit and ascent flight operation issues and ensure the success of the initial shuttle flights. Selected as chief of the Flight Director Office in 1984, he guided all aspects of shuttle flight operations. After the Challenger accident, he headed an investigation of mission planning and operations analysis activities and led the revision, updating, and validation of all

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A glimpse at  
the leader of  
Space Station.  
**Page 2**



Students focus on  
an out-of-this-  
world challenge.  
**Page 4 & 5**



Astronaut  
Ellen Ochoa  
honored.  
**Page 7**



P e r s p e c t i v e

*The Man Behind the Inspiration*

**In 1966,  
Tommy Holloway  
came to Houston  
with all of his  
belongings packed  
into one suitcase.**

A quiet country boy, his only goals at the time were to find a job and two good bird dogs, but things changed. Now 40 years later, he finds himself managing the construction of the world's largest orbiting space station and has just received one of the most highly coveted awards for the industry—The National Space Trophy. Those who have had the good fortune to work with Holloway may not find this recent award the least bit surprising, and in fact a well deserved testament to his leadership and dedication to the nation's space program. But how did a young man from Arkansas

family as one of his most treasured blessings. When he speaks of his eight grandchildren he exudes pride and happiness. "It is stated in a bible proverb, 'As arrows are in the hand of the mighty man; so are children of the youth. Happy is a man that hath a quiver full of them,'" stated Holloway. "My quiver is full—well, maybe one or two more." When Holloway shares what he considers his other blessings, it easily explains his leadership success and his passion for the work we do. The challenges of putting thousands of pieces of hardware into orbit are staggering, but Holloway faces these issues with natural country charm and keen engineering instincts. Soft-spoken, folksy, and possessing an uncanny ability to focus on what's important, he has paired operational know-how with outstanding leadership skills. Holloway has created a vision and mission for the ISS program. He believes in developing his people and creating a learning organization that emphasizes core values of safety, trust, integrity, respect for people and technical excellence. He is the hardest-working individual in the program and



**Avid hunter and fisherman, Holloway, shown here with an impressive catch in Alaska, now says family takes first prize.**

come to play such a leading role in the most complex engineering and scientific space project ever attempted? Born and raised in the small town of Jasmine, he had only 20 other students in his high school graduating class. Crediting his parents for instilling in him motivation and perseverance, he went to Arkansas Polytechnic and on to the University of Arkansas where he received a bachelors degree in mechanical engineering. A self-described introvert, he headed to Houston after graduation. According to Holloway, there was little more on his mind at the time than work, hunting and fishing—that is until he met Shirley, "a pretty lady from East Texas." Little did he know at the time, she would be the woman who would introduce him to their faith and become his strongest supporter. They were married and had three children—Wesley, Tonya and Timothy. "She is my beacon" said Holloway, during his acceptance speech. "And she is my number one supporter." It doesn't take long when listening to Holloway to find that he holds his

is meeting ISS milestones with grace and his signature modesty. Widely respected by those around him, Holloway is known for his integrity, honesty and humility. He would say that his career successes are attributable to the people who work for him. Those very people would say they have been inspired by Holloway's work ethic, lifelong devotion to the space program and hands-on management style. "Tommy is a leader of impeccable moral character who has brought a rigor to the ISS budget process that will ensure our continued success through the remaining Space Station assembly tasks," said Bob Cabana, manager for International Operations. "He has a unique ability to get the right folks in key positions, provide them with the necessary guidance to establish program goals, and then allow them the flexibility to achieve great things. He never asks more of anyone than he would give of himself and he always has the best interests of the team and the program at heart. He's a good man who leads by example." ■

Continued from Page 1 • • • • •

**Stellar employees**

flight rules, mission documentation and launch commit criteria—all crucial to the shuttle's highly successful return to flight. As deputy manager for Program Integration for the Space Shuttle Program and later as manager of the Shuttle-Mir Phase One Program, Holloway implemented a first-of-its-kind partnership between the U.S. and Russian space agencies. This partnership gave NASA the experience and expertise to assemble and operate the ISS. His leadership was the cornerstone to the historic first docking of the space shuttle to Mir in July 1995. The mission laid the groundwork for the success of all subsequent Shuttle-Mir missions. In 1995, Holloway was asked to lead the Space Shuttle Program as program manager. He directed 23 safe and successful shuttle missions, resulting in solid scientific study, groundbreaking satellite repairs, critical preparation for future ISS activities, and the delivery of Unity, the first U.S.-built module for ISS. Under his leadership, the Space Shuttle Program was consolidated and reorganized for technical and budgetary efficiency. He accomplished the top three goals of the Space Shuttle Program: fly safely, meet the flight schedule and reduce costs. Named to his current position in 1999, Holloway has transformed his organization by improving technical integration policies, updating ground and flight operations processes, and streamlining management processes to improve overall systems and reduce risks. Holloway has long been reconized by NASA for his leadership, as the recipient of numerous agency awards. Rotary National Award for Space Achievement Foundation was established in 1985 by the Space Center Rotary Club to recognize individuals who have made outstanding achievements in space, creating a greater public awareness of the benefits of space exploration.

Deputy Director **Jim Jaax** of the JSC Engineering Directorate was recognized for his overall leadership and technical direction of the Agency's pioneering space efforts.



**Jim Jaax**

**Dr. Jan Meck** was recognized for improving the center's status in the research communities by improving the cardiovascular laboratory such that it is internationally recognized for its excellence.



**Dr. Jan Meck**

**Bill Panter**, manager, Avionics and Software Office, was honored for his contributions to the International Space Station Program in the area of software development and avionics integration.



**Bill Panter**

**David Jochim** received a Stellar Award for his outstanding efforts to design, develop, fabricate, and test both the Pneumatic Transporter and the Mini-AER-Cam robots.



**David Jochim**

**Kwatsi Alibaruho** was honored for his exceptional contributions in developing cabin atmosphere depressurization responses to ensure the safety of flight crews living on-board the International Space Station.



**Kwatsi Alibaruho**

**Cindy Cross** was recognized for her exceptional level of professional responsibility, technical expertise, and leadership, as Subsystem manager, in the testing, qualification, and achieving flight readiness of the External Active Thermal Control System of the International Space Station.



**Cindy Cross**

**Mike Brieden**, deputy manager for Development in the Space Shuttle Vehicle Engineering Office, received an award for his outstanding contributions in the leadership of the cockpit avionics upgrade effort.



**Mike Brieden**

**Susan Gomez** was recognized for her significant contributions to the successful implementation of Global Positioning System technology on the International Space Station and Crew Return Vehicle.



**Susan Gomez**

**Dr. Dick Morris** was honored for his outstanding leadership as an internationally recognized mineralogist and planetary scientist whose work will greatly further our understanding of the geological processes and climate of Mars.



**Dr. Dick Morris**



# The Boeing Company hosts Technology Exposition and Exchange

A unique opportunity is being offered to acquaint NASA employees with the space-related programs, technologies and process innovations of The Boeing Company that are available to support Johnson Space Center (JSC) programs and missions. On April 4 - 5, Boeing will host a Technology Exposition and Exchange at the JSC Gilruth Center. This Technology Exposition is focused on aerospace programs and technologies for the Space Shuttle, International Space Station, human exploration of space and other JSC initiatives.

The Exposition will provide an opportunity for government employees to review internal Boeing Independent Research and Development projects, as well as contracted R&D from other government agencies. More than 200 display boards depicting Boeing products, technologies and best

practices, along with various demonstrations, models, hardware and videos, will be exhibited. Select briefing sessions also will be held during the Exposition.

"We believe this event will provide a great opportunity for Boeing to present its new technology initiatives and product innovations to your technical and operational organizations," said Mike Mott, Boeing vice president and general manager, Human Space

Flight & Exploration. "It also will demonstrate our capabilities and future strategic direction in these key areas."

Jim Albaugh, Boeing president, Space and Communications Group, and Dave Swain, Senior vice president, Phantom Works, will participate in the two-day event to discuss the investment and commitment of The Boeing Company in technology advancement.

This interchange is in

conjunction with Boeing Phantom Works, the advanced research and development unit of The Boeing Company. Its mission is to provide innovative breakthroughs that significantly reduce the cycle time and cost of developing and producing aerospace products while improving quality and performance. Boeing held a successful exposition at the Air Force Space and Missile Systems Center in El Segundo, Calif. last year. These expositions were developed to replace the previously mandated Independent Research and Development reviews held either at the contractor's facility or at customer sites.

**Editor's note:** The content of the Exposition contains Boeing proprietary information. The event is closed to the public and open only to U.S. Government personnel, (U.S. citizens only; foreign nationals prohibited). ■



Volunteers staff a table at a recent Technical Exposition between Boeing and the United States Air Force Space and Missile Center.

# Competition has students building robots and skills

by Dennis Wells

Excitement was high at this year's Texas Computer Education Association (TCEA) robotics contest held at the Austin Convention Center on Feb. 7.

Thirty-eight teams from around Texas competed in the grade 5 through 8

competition. Many high school teams in grade 9 through 12 also competed in a separate category. JSC's education outreach program provided mentoring for Friendswood's two Windsong Intermediate teams. One of those teams remained undefeated to take the top spot in relentless competition, and also defeated the first place Westbury high school's team robot in an exhibition round.

Windsong's sister school, Bales Intermediate, competed, taking home third place honors, and Houston's Shlenker Private School earned second place honors.

"I was so proud of them, and they are so pumped up," remarked Judy True, one of the two Windsong teachers responsible for guiding their effort.

The students were challenged to build and program an autonomous robot using a Lego® based micro-controller, light and contact sensors, and an array of mechanical components. The object of the competition was to push seven weighted aluminum soda cans outside of a circle marked with black tape in two minutes. Higher points were scored for leaving the cans upright, moving them faster than your opponent, and moving your opponents' cans also.

But the goal of the event was far more than the simple joy of competition. By producing competitive autonomous robots using limited resources and time, students rapidly developed skills in mechanics, strategy, computer programming and teamwork. Though the effort was truly intense and grueling at times, none of this was apparent on the faces of the participants. Success for them in this learning experience could already be declared before the first competitive round.

Through many hours of after-school

development, these sixth grade students developed and programmed their robots. They tested, changed, and tested again to perfect them. They learned not only from the building and programming, but also from designing strategies for the competition.

Like any competition, however, this one had its share of unexpected difficulties. Lighting conditions, can arrangement and weight, as well as opponent strategies, presented surprise challenges to the students upon arrival at the contest. Adapt was their call for action. But with excellent advice from Terry Chalene, Windsong's teacher lead and secret weapon at the competition, their actions were measured. They had the wisdom of their experience of hundreds of "small" changes with unexpected results to temper their decisions. Many of them had not previously experienced the constraints or strengths of this kind of team effort. In the end, win or loose, they all felt a sense of accomplishment, and demonstrated excellent attitudes. ■



The two Windsong Intermediate teams smile proudly while they hold their awards on stage.

# Volunteers spread NASA message to thousands at Rodeo

Thousands of visitors stopped by the NASA exhibit at the three-week long Houston Livestock Show and Rodeo to take a picture in an astronaut suit or watch a video of students floating on the KC135.

Visitors that came by the exhibit numbered somewhere between 13,000-18,000. "I considered it a resounding success," Hazel Fipps-Mann, Community Outreach Coordinator at JSC, said. "We were able to get the NASA message out to about 15,000 people."

According to Fipps-Mann, it is essential to let people know how important their support is for NASA. Also important is letting people know that JSC is a part of this community. To get the message out, NASA bags were given, filled with colorful flyers for Open House and Space Center Houston, along with bookmarks that provided information on educational programs.

The exhibit was smaller this year, the fifth straight year that JSC has been at the

HLS&R. Shrinking from 7,500 to 900 square feet, the smaller exhibit was easier to manage, said Louis Parker, Exhibits and Displays Public Affairs Officer.

The smaller size did not mean anything was left out. There was a wealth of information available for the guests.

Technology transfer items were on display, such as the hand-held vacuum. This item signified the rechargeable cordless tools that are common today, and based upon the drill developed for NASA to use on the moon. Smoke detectors, which were first created for use on NASA's Skylab, as well as a foam neck pillow, developed for NASA pilots during testing, were also featured.

The Virtual Astronaut computer simulation was a stopping point, as was the interactive kiosk, "What's Up In Space?" that asked general questions about spaceflight.

Video screens and a television were mounted for easy viewing, while a model of the X-38 hung on a truss structure.

On weekends, astronauts volunteered to come and sign autographs and meet with the public. Fipps-Mann said they are a wonderful representation of not only the Astronaut corps, but of NASA as well. She added they never fail to impress

with their graciousness and patience.

The exhibit could not have worked without the volunteers from JSC, Rayethon and Boeing. Some volunteers could use the time they worked to accrue credit hours or comp time, while others used their vacation time to staff the exhibit. Volunteers return year

after year to work at the rodeo.

"Being a representative of NASA to the public is always extremely gratifying," Fipps-Mann said. "For many people, it is their only time to get to talk to people about what they do here and the overall NASA effort." ■



NASA JSC 2001e05520 Photo by James Blair  
Astronaut Rick Linnehan signs autographs for visitors to the NASA booth at the rodeo.



# JSC Competition brings in students for a challenging weekend

The year is 2045. The Foundation Society has issued a request for proposal of a Mars-based settlement to accommodate 19,000 residents. You have one weekend to meet with your colleagues and complete a proposal. Be ready to present your design in three days.

This was the situation that more than 100 10th, 11th and 12th graders faced as they arrived at JSC Friday, Feb. 2. Suddenly, the 122 students found themselves decades into the future, divided into four groups of unfamiliar faces and given a task as great as planning a dwelling on a planet they had only read about.

“The team focused early on a baseline concept and spent the remaining time refining the details of the design,” said Boeing’s Jon Zelon, of winning team Grumbo Aerospace. Time management and communication skills, as well as stamina, were tested as the high school students had to develop a safe and

pleasant working environment, with detailed allocation of resources. A cost for design was given to the students and, as Sean Cluster of Pearland High School learned, “it can get real expensive, real quick.”

The participants spent their time against the mockups of the shuttle and the space station in the highbay of Building 9. The site was quite inspiring, especially for those students interested in engineering. But the competition draws students from many more disciplines, too.

As Astronaut Dr. Bonnie Dunbar explained, it attracts “students that are not only in science and math, but writers, public speakers and artists. So it was engaging students into space but in the same breadth of backgrounds that we use here at the agency. We’re a team. They learn what we learn. It gives them a real life taste.”

Working with a deadline, the students had to communicate ideas quickly.

“We’re all tired, we’re all working hard, but it’s worth it at the end to see the finished product as a whole group, a team,” said Ricky Chow, a member of Grumbo Aerospace.

“Teamwork is number one,” Jon Zelon says. “The team either succeeds or fails based on its ability to make maximum use of its resources. The majority of students stay up the whole night completing the proposal and preparing for the oral presentation. It is very rewarding for me to be a part of this and to watch our future business leaders having this experience for the first time.”

“I’m convinced that all of these students took away with them the memory of an experience that will benefit their future career paths. And it’s so exciting to me to think that some of these students may play a key role in our eventual human mission to Mars—maybe even be a crew member,” said Norm Chaffee, project coordinator for the event.

The three other teams—Rockdonnell, Vereinigten Flugfahrten GmbH and Vulture Aviation—left with certificates signed by former center director George W. S. Abbey. Grumbo received the certificates and medals of achievement.

Assisting the students were volunteers from government and industry serving as CEOs for the teams. Jon Zelon of Boeing worked with Grumbo Aerospace; Dr. Merri Sanchez and Nicole Mullins of NASA, with Jorge Molina Acosta of Boeing, worked with Vulture Aviation; Andrew Carmain and Carolyn Kostak of USA worked with Vereinigten Flugfahrten GmbH; and Brian Derkowski and Jim Geffre of NASA worked with Rockdonnell, Inc.

These volunteers gave of their time and expertise to help the students accomplish their goal. Dr. Dunbar insists that the competition “wouldn’t work without the dedication of our civil service and contractor volunteers.” ■





## White Sands Test Facility holds second Mars design competition

By Cheerie R. Patneau

**E**ighty-seven students from 25 New Mexico High Schools competed in the Second Annual Mars Settlement Design Competition, Feb 16-18, at Oñate High School in Las Cruces. The Mars Settlement Design Competition is an important event for NASA JSC's educational outreach effort.

The students are challenged to respond to a request for proposal (RFP) where all aspects necessary to actually complete the project have to be considered, including design, construction materials, logistics, transport vehicles, power allocation, robotics systems, life support, cost estimate and schedule. The community they designed had to accommodate thousands of residents. The students were welcomed to the event by Astronaut Dr. Bonnie Dunbar and

Co-Founders Anita Gale and Dick Edwards. Gale and Edwards, who have been designing competitions

for over 15 years, are Boeing systems engineers and Co-Chairs of the California Science Fair. In the opening ceremonies at the Oñate Performing Arts Center, Gale said they have "set the Mars settlement design competitions as management industrial simulations, rather than as technical simulations, as that is as close to working on an industry proposal as we can get."

Both Gale and Edwards believe students who experience the competition become inspired to pursue a career in a technical field, not necessarily in aerospace. Gale said to her audience, "We've heard and received letters from kids who tell us how much this experience has meant to them and how it has changed the direction of their lives. Completing this event is a success for each of you, which in turn helps your life become even more successful."

The students worked feverishly, nearly around the clock, to develop their proposal and prepare a 35-minute presentation for a panel of industry and corporate judges. Volunteers gave up their weekend to be CEOs and coach and mentor their teams: Kurt Rathgeber (Honeywell) and Stephen

McDougle (Honeywell)—Vereinigten Flugfahrten; David Loyd (NASA) and wife Kim — Dougeldyne/Flechtel; Barry Plante (NASA) and Lindy Ford (White Sands Missile Range)—Vulture Aviation; Donna Nelson (Honeywell) and Lonnie Sumpter (Vice Chair, Space Task Force, Executive Committee New Mexico-Grumbo) Nelson, one of the returning CEOs, reported that her "students were very enthusiastic and worked well together."

Ten judges weighed each student team's 50-page response and Sunday-morning presentation against the criteria of the RFP. While the judges deliberated, the students selected from six Science Advisor (SciAd) demonstrations, ranging from boroscopes to micro-gravity to a vacuum. SciAd Bill Curtis challenged students with "Rocketry," a hands-on rocket design project where students make and test-fly their own rockets. Some flew more than 200 feet.

The students returned to the Performing Arts Center to learn whose

proposal had best responded to the RFP. Dick Edwards announced the winning team as Dougeldyne/Fletchtl.

"I was determined to let the kids do their own work and make their own mistakes, but at the same time I didn't want to be evasive when they needed help," said Loyd, CEO of the winning team. "Whenever I felt the urge to tell or direct, I caught myself and asked them where they might go to figure things out or what they might do on Earth to solve a technical challenge."

He said it was amazing to see how enthusiastic the kids were once they got the idea of what they wanted to do to research each problem.

"We stated up front that, as a team, it would be great if we won, but what we were really out to do was have fun and learn something on the way," he said. "At the award ceremony it was heart-warming to see how happy the kids were, just having been a part of the whole experience. And when Dick Edwards circled the winning team's name, Dougeldyne/Fletchtl, it was a better feeling than beating the Soviet hockey team." ■



## An important reminder about NASA & JSC College Scholarship Opportunities

Applications must be received by March 30, 2001. Dependents of JSC employees have two college scholarship opportunities.

- The NASA College Scholarship Fund is an Agency-wide scholarship, based on academic accomplishments and activities. Applicants must be pursuing a science or engineering major.
- The JSC Exchange Scholarship is based on academic accomplishments, activities, and need. Applicants may pursue any course of study for this scholarship. For more information please visit the HRO website:

[http://jscpeople.jsc.nasa.gov/jsc-hro-2/special\\_programs/fellowships\\_&\\_scholarships.htm](http://jscpeople.jsc.nasa.gov/jsc-hro-2/special_programs/fellowships_&_scholarships.htm)



Ripped  
from the  
ROUNDUP

Ripped straight from the pages of  
old Space News Roundups, here's what  
happened at JSC on this date:

1971

A team of scientists recently accompanied members of the Apollo 15 prime and backup crews, Commander David Scott and Lunar Module Pilot James Irwin of the prime crew and Richard Gordon and Harrison Schmitt of the backup crew, to a rugged area, part of the Rio Grande River Gorge, six miles west of Taos, New Mexico. The purpose of the trip was to familiarize the astronauts with geological features similar to ones they may encounter in the Hadley-Apennine area of the moon where they are scheduled to land in late July.

In particular, the area near Taos was selected because of its similarity to what geologists expect members of the prime crew, David Scott and James Irwin, to find as they explore Hadley Rille, one of the main features of the lunar landing area.

1981

Astronauts John Young and Robert Crippen last week donned their new three-piece shuttle spacesuits: upper torso, lower torso, and helmet (with visor). Then, in a vacuum chamber pumped dry of air, they tested, "bought off," and ordered the "three-piecers" delivered to their shuttle orbiter, *Columbia*, at Cape Kennedy in case they need to take an unscheduled walk in space next month.

The space-walk suits were tested with the space-certified primary life-support systems (backpacks) supplying the oxygen and suit pressure as they would if needed during the first orbital flight named STS-1.

No space walk is planned, but if required, it would be performed by Crippen. A space walk would be required if *Columbia's* payload bay doors are jammed by debris or fail to lack shut. A 100-foot tether would connect the suited crewman to the orbiting spacecraft.

1991

The STS-37 crew is scheduled for launch aboard *Atlantis* possibly as early as April 5 carrying the Gamma Ray Observatory. The orbiting observatory is designed to remain in space and study short-wavelength gamma rays in hopes of uncovering clues to the nuclear processes that transform matter and energy into celestial sources.

During the upcoming flight, two crew members also will conduct the first spacewalk since 1985. This spacewalk will demonstrate the feasibility of moving around Space Station Freedom's truss structure using a gliding track to reduce astronauts' workload.

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Frosch, Yardley cover  
new space technology  
in STS development



# New pavilion opens at Gilruth Center

Employees and visitors are now able to enjoy the comfort and amenities of a new, larger pavilion at the Gilruth Center for their picnics and barbecues.

Completed in February, the new pavilion expands seating capacity by 50 percent and features four ceiling fans, electric lights, a hot-water generator and cold-water drinking fountains. It also has a portable wireless speaker system with a wireless microphone.

"The old pavilion was not structurally sound and needed to be replaced," said David Adair, NASA Gilruth manager. "The 'winged wonder,' as it was called, was too small for most of the larger functions and had served us well over the years. The new pavilion should meet our customers' needs for the next twenty years."

The covered area measures 50-feet by 50-feet. With the 10-foot easement around the perimeter, total area is 60-feet by 60-feet. The pavilion has an additional 25-foot by 25-foot cooking area, complete with a built-in stainless steel cooking grille and smoker and a sink. Pit Masters of Tomball, Tex., specially made the grille.

Limestone tile covers the columns and the cooking area. There are power outlets and receptacles on the columns.

Due to structural problems, the old pavilion, which measured 40-feet by 60- feet and was built in 1974, was demolished last November and construction of the new facility began. The facility



NASA JSC 2001e05574 Photo by David Dehoyos

The new pavilion at the Gilruth Center, completed in February, offers employees more pace for outside events.

was built under contract with Romet, Inc. of Bellaire, Tex. Construction inspection was provided by Jim Premeaux of Gilbane Building Co.

"The new pavilion is quite an improvement from the 'winged wonder,'" said Melissa McKinley, Center Operations Directorate project manager. "The old pavilion had deteriorated due to age, and the new one has quite a few added features that patrons will enjoy. The separate cooking area will allow cover while cooking and can be used alone for small gatherings as well. Aesthetically, the new pavilion's style stands out."

The new pavilion is just one of many improvements that have been made to the Gilruth Center over the past year. Others

include installation of an automatic irrigation system to water the softball and soccer fields, replacement of the driveway leading to the Gilruth and installation of new lights in the parking lots leading to the softball fields.

The next major improvement will be remodeling the dining room, conference rooms and hallways on the second floor of the Gilruth Center, including adding new wallpaper, window treatments, carpeting, furniture and audiovisual equipment.

Also for a modest fee, civil servants and contractors can reserve the pavilion for their own private parties. For more information, call the Gilruth Center at 281-483-0326. ■

Construction On-site

Teague Auditorium in Building 2 South is getting some upgrades of its own. A new fire extinguishing system is being installed and the fire detection and alarm system is being upgraded. Previously, the Teague Auditorium only possessed a detection system, so "this project will install a wet pipe system in accordance with National Fire Protection Act 13," according to Project Manager Charles Noel. Along with the sprinkler and alarm renovations, the workers will perform asbestos spot abatement. The work, which is being completed by Arteaga Construction Co., is scheduled to be completed June 24.

Until then, those wishing to use the facility can contact Space Center Houston, Wanda Norris for the Building 30 Auditorium or the Gilruth Center as alternatives. ■

The JSC Employee Assistance Program Presents

Conflict Management\*

Dr. Malinda Lea

Wednesday, March 28, 2001

12:00 - 1:00

Building 30 Auditorium

Join us as Dr. Malinda Lea discusses skills and techniques for positive conflict management. Dr. Lea will discuss positive and negative styles of communication; give strategies for dealing with difficult people (peers, supervisors, subordinates) and will discuss how to deal with explosive situations.

Dr. Lea received her Master's Degree from University of Houston-Clear Lake and her Doctorate from Texas A&M University. Currently, she is a psychologist in private practice in Clear Lake. Prior to entering private practice, she held various management positions. As a manager for a large hospital system, she conducted training for managers and employees on topics such as stress management, team building, effectively dealing with difficult people, assertiveness, positive managing, motivation, cultural diversity, and violence in the workplace.

\*This presentation is highly recommended for supervisors, but is open to all on-site civil servants and contractors.

TICKET WINDOW

	JSC Price	Gate Price (includes tax)
AMC Theaters .....	\$5.00 .....	\$7.50
Astroworld Early Bird (purchase by June 17) .....	\$19.50 .....	\$38.96
Astroworld One Day Admission .....	\$20.50 .....	\$38.96
Astroworld 2 Day Admission .....	\$31.00 .....	\$43.29
Fiesta Texas Adult .....	\$21.50 .....	\$38.82
Fiesta Texas Child (under 48") .....	\$18.75 .....	\$19.42
Moody Gardens (2 events) .....	\$10.75.** .....	\$27.01 all day
** ticket does not include Aquarium Pyramid		
Moody Gardens - Aquarium only .....		\$9.25
Sea World adult.....	\$30.00 .....	\$36.75
Sea World child (ages 3-11).....	\$20.50 .....	\$25.93
Space Center Houston.....	\$9.25 .....	\$16.18
JSC civil service employees free.		
Check out our new Web site on the JSC People page at: <a href="http://hro.jsc.nasa.gov/giftshop/">http://hro.jsc.nasa.gov/giftshop/</a>		

Exchange Store hours

Monday-Friday

Bldg. 3 7 a.m.-4 p.m.

Bldg. 11 9 a.m.-3 p.m.

➤ All tickets are nonrefundable.

➤ Metro tokens and value cards are available.

➤ Sweetwater Pecans . . . . . \$6.25 per lb.

➤ Chocolate-covered Pecans . . . \$8.00 per lb.

For additional information,  
please call x35350.

Please bring your driver's  
license to pay by personal check.





## Neutral Buoyancy Lab medical director receives Legion of Merit



Shown, from left, are Lindsey, Fitzpatrick and wife, Julia.

**A**stronaut Steven Lindsey recently presented the Legion of Merit, awarded by the Secretary of the Army, to Kelsey/Seybold physician Dr. Dan Fitzpatrick, medical director of the Neutral Buoyancy Laboratory-Sonny Carter Training Facility. Fitzpatrick received the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding service in various positions of great responsibility as a specialist in aerospace medicine

during the period from July 1, 1988, to June 30, 2000. This culminated with his management and direction of the only hyperbaric medicine program in the United States Army from July 1, 1994 to June 30, 2000 while assigned to Lyster Army Hospital, Fort Rucker, Ala., and then Eisenhower Army Medical Center, Fort Gordon, Ga. During this time he also served as the consultant on hyperbaric medicine to the Army surgeon general. ■

## JSC energy manager receives award for conservation efforts

**J**SC Energy Manager Dennis Klekar has received the Alternative Financing Award (in the category of individual recipients) from the Department of Energy's Federal Energy Management Program in conjunction with the Federal Interagency Energy Policy Committee. The award was presented during the 2000 Federal Energy and Water Management Awards ceremony held in Washington, D.C.

Klekar was given the award in recognition of his efforts in securing the Energy Savings Performance Contract for NASA/JSC, the first of its kind within NASA. The contract uses documented energy savings to finance new equipment and improvements for the center.

The awards were given to employees of all federal agencies. Klekar was one of two NASA recipients.

"I'm the representative of a lot of people who worked to secure this contract," said Klekar, who has served as the center's energy manager since 1993. "This award belongs to everyone involved in the project. Civil service personnel who played a vital role in the contract development include Chuck Gieck, Melissa McKinley, Dennis Hehir, Pat Kolkmeier, Jo Kines, Charley Moore, Harry Hart and Ron Stone, all from the Center Operations Directorate, Rich Wickman from Headquarters and Jeff Dominick from FEMP at DOE. We should also remember that we did have a very good contractor in Honeywell incorporated which added greatly to the project with their previous ESPC experience."

Klekar's efforts to implement an ESPC at the center began in 1994, finally leading to a contract award in February 1999. The contract, valued at approximately \$43 million over its 23-year term, was issued to Honeywell, Inc. Contract scope included installing energy-efficient lighting and compressed air systems, variable speed pumping systems and cooling tower control systems. It also called for installing water conservation devices and improving temperature controls in buildings at JSC, the Sonny Carter Training Facility and Ellington Field.

Additionally, under the terms of the contract, an advanced energy management system was installed that will further enhance the center's ability to monitor and manage the indoor environment and improve comfort for personnel. The savings reaped from this project will pay for the cost of all energy and water efficiency improvements, about \$20 million, at no cost to the taxpayer.

During the construction period in fiscal year 1999, JSC saved some \$500,000 in energy costs and 40 billion Btu. With the completion of the project last May, JSC is guaranteed to save more than \$1.7 million in energy and water costs and \$340,000 in maintenance savings per year.

Many plans are under consideration to further enhance energy efficiency across the center, according to Klekar. Potential future improvements include replacing steam-turbine-driven chillers with new natural gas turbine chillers, the addition of a waste heat steam boiler, a cold water storage system and using solar energy to heat the Neutral Buoyancy Lab, the 6.2-million-gallon pool at the Sonny Carter Training Facility. Also under consideration is a plan to install an energy management system at Ellington Field that can be read remotely from JSC's Operational Control Center. ■



Dennis Klekar



## Celebrating Women of Courage and Vision

*Because so many women and men grew up without reading about the accomplishments and contributions of women in their history books, Women's History Month is a great opportunity to fill in some of the gaps. And it's especially important for girls today to read about women in technology fields, so that they can learn about the interesting, challenging careers available to them if they are willing to study and work hard.*

-Ellen Ochoa



**T**he National Women's History Project is honoring Astronaut Dr. Ellen Ochoa during Women's History Month. Ochoa is being recognized as the first Hispanic woman in space.

Ochoa and the five other honorees can be found on the National Women's History Project Website: <http://www.nwhp.org/whm/themes/themes.html>

In observance of Women's History Month, JSC is having a Web cast on Wednesday, March 28, from 1-2 p.m. The Web cast will feature Vanessa Ellerbe.

Vanessa Ellerbe is a Space Shuttle Program Flight Manager. She manages

a team of engineers who plan, develop and implement space shuttle missions. A native of Conway, South Carolina, she received her bachelor's degree in Materials Engineering, as well as her master's in Bioengineering from Clemson University. Ellerbe has been working at JSC for 12 years.

Ellerbe will have five to ten minutes to introduce themselves and give a brief background of why she chose the science field. She will then answer questions from people who log on to <http://quest.arc.nasa.gov/space/events/jsc/>



DATES

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DATA

MARCH 28

**Astronomy seminar:** The JSC Astronomy Seminar Club will meet at noon today in Bldg. 31, Rm. 248A. For more information contact Al Jackson at x35037.

**Spaceteam Toastmasters meet:** The Spaceteam Toastmasters meet at 11:30 a.m. at United Space Alliance, 600 Gemini. For details contact Patricia Blackwell at (281) 280-6863.

**Spaceland Toastmasters meet:** The Spaceland Toastmasters meet at 7 a.m. March 28, April 4 and 11 at the House of Prayer Lutheran Church 1515 Bay Area Blvd at Reseda. For more information, contact Ava Sloan at 713-768-6336 or [asloan@halpc.org](mailto:asloan@halpc.org)

MARCH 29

**Radio Club meets:** The Johnson Space Center Amateur-Radio Club meets at the Piccadilly Cafeteria, 2465 Bay Area Blvd at 6:30 p.m. More information is available at website-<http://www.w5rrr.org>

**Communicators meet:** The Clear Lake Communicators, a Toastmasters International club, meets at 11:30 March 29, April 5 and 12 at Wyle Laboratories, 1100 Hercules, Suite 305. For more information contact Allen Prescott at (281) 282-3281 or Richard Lehman at (281) 280-6557.

**Spaceland Toastmasters 25th Anniversary:** All members, past and present, are invited to attend the anniversary dinner held at Perry's Italian Grill. For details contact Ava Sloan at (713) 768-6336.

APRIL 2

**NSS meets:** The Clear Lake area chapter of the National Space Society meets at 6:30 p.m. at the Parker Williams Branch of the Harris Co. Library at 10851 Scarsdale Blvd. For more information contact Murray Clark at (281) 367-2227.

**NSBE meets:** The National Society of Black Engineers meets at 6:30 p.m. at Texas Southern University, School of Technology, first floor. For more information contact Kimberly Topps at (281) 280-2917 or visit [www.nsbe.org](http://www.nsbe.org)

APRIL 3

**Quality Society meets:** The Bay Area Section of the American Society for Quality meets at 6 p.m. at the Franco's Restaurant. For more information contact Ann Dorris at x38620.

APRIL 4

**Astronomy seminar:** The JSC Astronomy Seminar Club will meet at noon on April 4, 11, 18 and 25 in Bldg. 31, Rm. 248A. For more information contact Al Jackson at x35037.

Public invited to AIAA/Boeing presentation on 747x program

The American Institute of Aeronautics and Astronautics (AIAA), Houston Section will host a dinner meeting featuring the 747X Program. Walter B. Gillette, of The Boeing Company's 747XDevelopment Program, will highlight the definition, design, and development of the 747X family of airplanes, including the 747X, which will be the world's longest-range airplane, and the 747X Stretch, which will be the world's largest 747 in either passenger or freighter configuration.

These models join the 747-400 and Longer-Range 747-400 as well as theLonger-Range 777s in serving the long-range, high-capacity airplane market.

The dinner will be held at JSC's Gilruth Recreation Center Ballroom. The social begins at 5:30 p.m., dinner is at 6 p.m. and presentation at 7 p.m. The event is open to the public. The cost is \$8.00 for AIAA members and spouses, \$10.00 for non-members, and \$5.00 for students.

To RSVP, contact Jorge Molina (281-336-5048 or [jorge.molinaacosta@SW.Boeing.com](mailto:jorge.molinaacosta@SW.Boeing.com)).

GILRUTH CENTER NEWS

Sign-up policy:

All classes and athletic activities are on a first-come, first-served basis. Sign up in person at the Gilruth Center and show a yellow Gilruth or weight room badge. Classes tend to fill up two weeks in advance. Payment must be made in full, by cash or by check, at the time of registration. No registration will be taken by telephone. For more information, call x33345.

Gilruth badges:

Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday and 9 a.m.-2 p.m. Saturdays. Cost is \$12. Dependents must be between 16 and 23 years old.

Open from 6:30 a.m.-10 p.m. Monday-Thursday, 6:30 a.m.-9 p.m. Friday, and 9 a.m.-2 p.m. Saturday. Contact the Gilruth Center at (281) 483-3345. <http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm>

**Nutrition intervention program:** This is a free seven-week program designed to provide an understanding of the role diet and nutrition play in health. The program includes a series of lectures and private consultations with a dietitian. You will learn how to use dietary vitamins, minerals and herbal nutraceuticals for optimizing health. Classes are held on Wednesdays from 4 p.m. to 5 p.m. For details call Tammie Labiche, registered dietitian, at (281) 483-2980.

**Defensive driving:** One-day course is offered once a month at the Gilruth Center. Pre-registration required. Cost is \$25. Call for next available class.

**Stamp club:** Meets every second and fourth Monday at 7 p.m. in Rm. 216.

**Weight safety:** Required course for employees wishing to use the Gilruth weight room. Pre-registration is required. Cost is \$5. Annual weight room use fee is \$105. The cost for additional family members is \$58.

**Exercise:** Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

**Step/bench aerobics:** Low-impact cardiovascular workout. Classes meet from 5:25-6:25 p.m. Tuesdays and Thursdays. Cost is \$40 for eight weeks.

**Cardio-Kickboxing:** Medium impact. Learn basic kicking and punching. Tuesday and Thursday 5:30 p.m. - 6:30 p.m. Cost is \$40 for eight weeks.

**Yoga stretching:** Stretching class of low-impact exercises designed for people of all ages and abilities in a Westernized format. Meets Thursdays 5-6 p.m. Cost is \$40 for eight weeks. Call Darrell Matula, instructor, at x38520 for more information.

**Ballroom dancing:** Classes meet Thursdays from 6:30-7:30 p.m. for beginner, 8:30-9:30 p.m. for intermediate and 7:30-8:30 p.m. for advanced. Cost is \$60 per couple.

**Fitness program:** Health-related fitness program includes a medical screening examination and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

**Aikido:** Martial arts class for men and women. Beginners meet Monday 6:30 - 7:30 p.m and Wednesdays 5 - 6 p.m. Advanced students meet Tuesday and Wednesday 5 - 6:30 p.m. No special equipment is needed. Aikido teaches balance and control to defend against an opponent without using force. Classes run monthly. Cost is \$45 per month. Visit a class for more information.

NASA BRIEFS

KENNEDY TEAM WINS NASA AWARD

Faced with the daunting task of reducing hazardous rocket-fuel waste, a team of inventive scientists and engineers from Kennedy Space Center found a way to really clean up, while at the same time produce a commercially successful and safe by-product.

The team developed a process to convert the hazardous waste to a helpful fertilizer and was honored with NASA's Commercial Invention of the Year Award.

The invention was developed by NASA's Dr. Clyde Parrish, Dr. Dale Lueck, Andrew Kelly and Dynacs Engineering's Paul Gamble. Together, they developed the new process in response to an Agency request to reduce the hazardous waste stream captured in a scrubber when a toxic oxidizer is transferred back and forth from storage tanks into the space shuttle's Orbital Maneuvering Subsystem and Reaction Control System pods. The shuttle's OMS is used for the major orbital and deorbit maneuvers and the RCS is used for orbiter attitude control.

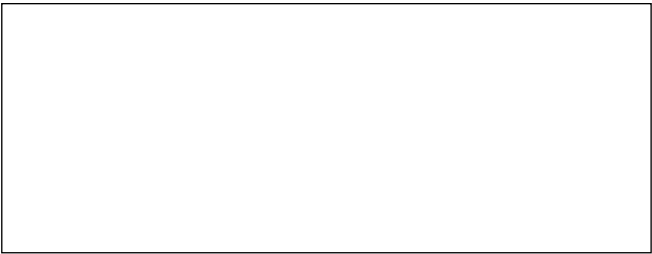
The process was tested and is being implemented at Kennedy, where it is being used on orange groves located on the center's grounds.

NASA RESEARCH SIMULATES HOW COLD STARS STAY IN SHAPE

In research with the potential to help study stars and improve space navigation, scientists have successfully used lasers to cool a cloud of lithium atoms sufficiently to observe unusual quantum properties of matter. Although current technology does not permit humans to travel to the stars, scientists can create a simulated star laboratory on Earth.

The scientists, at Rice University in Houston, TX, successfully simulated and photographed the process by which white dwarfs and neutron stars retain their size and shape, a mechanism called Fermi pressure. White dwarfs and neutron stars are dense, compact objects created when normal stars use up their fuel, cooling and succumbing to the forces of gravity.

Fermi pressure, named for Dr. Enrico Fermi, a Nobel Laureate prominent for his contributions in nuclear physics, has been theorized as the star stabilization mechanism, which keeps white dwarfs and neutron stars from collapsing further. NASA's Hubble Space Telescope and Chandra X-ray Observatory have observed such objects but this is the first time Fermi pressure has been directly observed in an Earth laboratory. The research by the Rice team, led by Dr. Randall Hulet, was conducted under a grant from NASA's Biological and Physical Research Program through NASA's Jet Propulsion Laboratory, Pasadena, CA.



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